Molecule	Rate before χ (bp/s)	Pause at χ (s)	Rate after χ (bp/s)	Position of the Pause (bp from end)
$\chi^{7k/8k}$-1	407 ± 8	1.6 ± 0.6	261 ± 23	6949 ± 320
$\chi^{7k/8k}$-2	230 ± 6	3.9 ± 0.8	180 ± 21	6964 ± 262
$\chi^{7k/8k}$-3	315 ± 7	3.5 ± 0.6	267 ± 23	6926 ± 335
$\chi^{7k/8k}$-4	585 ± 15	1.9 ± 0.5	275 ± 3	6499 ± 312
$\chi^{7k/8k}$-5	705 ± 49	5.8 ± 0.3	247 ± 2	6762 ± 822
$\chi^{7k/8k}$-6	642 ± 59	2.2 ± 1.1	445 ± 8	6626 ± 782
$\chi^{7k/8k}$-7	856 ± 79	0.8 ± 1.8	141 ± 1	6910 ± 199
$\chi^{7k/8k}$-8	909 ± 54	2.6 ± 0.5	495 ± 3	6801 ± 275
$\chi^{7k/8k}$-9	815 ± 37	6.3 ± 0.3	332 ± 3	6848 ± 215
$\chi^{7k/8k}$-10	706 ± 37	15.6 ± 0.3	223 ± 1	6805 ± 734
$\chi^{7k/8k}$-11	612 ± 18	5.3 ± 0.6	315 ± 9	8468 ± 274*
Average	**623 ± 210**	**4.5 ± 4.1**	**289 ± 105**	**6809 ± 520****

Rates before and after χ are the best fit values for the slopes of DNA unwinding during stages II and IV ± the standard error obtained from the regression analysis. Values for the position of the pause and the length of the DNA unwound are the average length of the DNA molecule measured for each video frame during the appropriate reaction stage ± one standard deviation for the DNA lengths measured during this stage. Values for the average rates, and both average position and average duration of the pauses are given as a mean value for all assayed molecules ± one standard deviation.

*The pause was observed at the downstream χ^{8K}.

**The average pause position calculated for the molecules that paused at χ^{7K}.